

## ABSTRACT

A system and method of converting waste plastics into hydrocarbon oil comprises a thermal cracking reactor, into which the waste plastics are cracked at a temperature in the range of 270-800°C to obtain partly gaseous hydrocarbons, partly liquid hydrocarbons, and remaining  
5 residues. A continuous thermal cracking and residual discharging portion is connected to have the liquid hydrocarbons gradually and fully cracked into gaseous hydrocarbons, while the residues are discharged at a residual discharge outlet. A chlorine removal portion is connected to receive the gaseous hydrocarbons to remove chlorine from it. A catalytic cracking reactor is connected to the chlorine removal portion to have the gaseous  
10 hydrocarbons catalytic cracking with an acid catalyst. A three-stage cooling portion is adopted to have the catalytically cracked gaseous hydrocarbons fully converted into liquid hydrocarbons, i.e., hydrocarbon oil. A pressurized activation reaction portion is provided to remove few amount of S. N. P. from the liquid hydrocarbons to obtain purified hydrocarbon oils.